


**AMENDMENTS TO THE CLAIMS**

Please make the following amendments to the claims:

1. (Currently Amended) A transmitter, comprising:

 (a) a tone ordering element, wherein the tone ordering element is ~~capable of assigning bits to a plurality of tones~~ configured to assign bits to each tone in a plurality of tones according to bit and gain information; and

a [KH1] memory containing the bit and gain information, the bit and gain information configured to associate each of at least a portion of a plurality of tones with a bit number, wherein the bit number associated with a first one of the tones is different from the bit number associated with a second one of the tones, where the first one of the tones is adjacent to the second one of the tones.

~~(b) a bit and gain table, wherein the bit and gain table is capable of designating that within a portion of the plurality of tones, a variable plurality of bits is assigned to each of the plurality of tones, and wherein the variable plurality of bits assigned to each of the plurality of tones is different from the variable plurality of bits assigned to each adjacent tone.~~

2. (Original) The transmitter of claim 1, wherein the portion of the plurality of tones has an original bit density that is the same for each of the plurality of tones, and wherein the bit and gain information is capable of designating a reduction of the original bit density by one on alternate tones within the portion of the plurality of tones.

3. (Currently Amended) The transmitter of claim 1, wherein the bit and gain ~~table information~~ is ~~capable of designating the assignment of the variable plurality of bits to each of the plurality of tones by boosting~~ configured to boost the power on a first group of tones within the portion of the plurality of tones and ~~lowering to lower~~ the power on a second group of tones within the plurality of tones.

4. (Original) The transmitter of claim 1, wherein the portion of the plurality of tones is selected based on correlated noise affecting the portion of the plurality of tones.

5. (Currently Amended) The transmitter of claim 1, wherein the bit and gain ~~table information~~ is capable of being dynamically determined by a receiver.

6. (Original) The transmitter of claim 1, wherein a portion of the variable plurality of bits is a portion of a DMT symbol.

7. (Currently Amended) A transmitting system, comprising:

(a) means for tone ordering, wherein the means for tone ordering is ~~capable of assigning~~ configured to assign bits to each of a plurality of tones; and

means for assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones; and

~~(b) means for communicating bit and gain assignment information, wherein the means for communicating bit and gain assignment information is capable of designating that within a portion of the plurality of tones, a variable plurality of bits is assigned to each of the plurality of tones, and wherein the variable plurality of bits assigned to each of the plurality of tones is different from the variable plurality of bits assigned to each adjacent tone.~~

8. (Currently Amended) The transmitting system of claim 7, wherein ~~the portion of~~ the plurality of tones has an original bit density that is the same for each of the plurality of tones, and wherein the means for assigning communicating bit and gain assignment information is capable of designating a reduction of the original bit density by one on alternate tones within ~~the portion of~~ the plurality of tones.

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A 9. (Currently Amended) The transmitting system of claim 7, wherein the means for assigning communicating bit and gain assignment information is capable of designating the assignment of the variable plurality of bits to each of the plurality of tones by further comprises a means for boosting the power on a first group of tones within the ~~portion of the~~ plurality of tones and lowering the power on a second group of tones within the ~~portion of the~~ plurality of tones.

10. (Cancelled) The transmitting system of claim 7, wherein the portion of the plurality of tones is selected based on correlated noise affecting the portion of the plurality of tones.

11. (Currently Amended) The transmitting system of claim 7, wherein the means for assigning communicating bit and gain assignment information is capable of being dynamically determined by a receiver.

12. (Currently Amended) The transmitting system of claim 7, wherein ~~a portion of~~ the plurality of bits is ~~a portion of~~ a DMT symbol.

13. (Currently Amended) A method for transmitting data, comprising the steps of:  
(a) receiving bits and relative gain information, wherein the bits and relative gain information designates a variable plurality number of bits to be assigned to each of a plurality of

tones, and wherein the variable plurality of bits to be assigned to each of the plurality of tones is different from the variable plurality of bits to be assigned to each adjacent tone; and

assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones.

~~(b) assigning bits to each of the plurality of tones based on the bits and relative gain information.~~

14. (Original) The method of claim 13, wherein the plurality of tones has an original bit density that is the same for each of the plurality of tones<sub>[KH2]</sub>, and wherein the bits and relative gain information designates a reduction of the original bit density by one on alternate tones.

15. (Currently Amended) The method of claim 13, ~~wherein the assignment of bits to the plurality of tones is accomplished by~~ further comprising the steps of boosting the power on a first portion of the plurality of tones and lowering the power on a second portion of the plurality of tones.

16. (Currently Amended) The method of claim 13, wherein the ~~plurality of tones is~~ first and second tones are selected based on correlated noise affecting the ~~plurality of tones~~ first and second tones.

17. (Original) The method of claim 13, wherein bits and relative gain information is calculated by a receiver.

18. (Original) The method of claim 13, wherein the bits and relative gain information is dynamically calculated by a receiver.

19. (Currently Amended) The method of claim 13, wherein ~~a portion of~~ the plurality of bits is ~~a portion of~~ a DMT symbol.

20. (Currently Amended) A computer readable medium, comprising:

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(a) logic for receiving bits and relative gain information, wherein the bits and relative gain information ~~designates a variable plurality of bits to be assigned to each of a plurality of tones and wherein the variable plurality of bits to be assigned to each of the plurality of tones is different from the variable plurality of bits to be assigned to each adjacent tone~~ is configured to associate each of a plurality of tones with a bit number, wherein the bit number associated with a first one of the tones is different from the bit number associated with a second one of the tones, where the first one of the tones is adjacent to the second one of the tones; and

(b) logic for assigning bits to tones based on the bits and relative gain information.

21. (Currently Amended) The computer readable medium of claim 20, wherein the plurality of tones ~~had~~ has an original bit density that is the same for each of the plurality of tones, and wherein the bits and relative gain information designates a reduction of the original bit density by one on alternate tones.

22. (Currently Amended) The computer readable medium of claim 20, ~~wherein the assignment of bits to the plurality of tones is accomplished by~~ further comprising logic to boost ~~boosting~~ the power on a first portion of the plurality of tones and ~~lowering~~ lower the power on a second portion of the plurality of tones.

23. (Original) The computer readable medium of claim 20, wherein the plurality of tones is selected based on correlated noise affecting the plurality of tones.

24. (Original) The computer readable medium of claim 20, wherein the bits and relative gain information is calculated by a receiver.

25. (Original) The computer readable medium of claim 20, wherein bits and relative gain information is dynamically calculated by a receiver.

26. (Original) The computer readable medium of claim 20, wherein a portion of the plurality of bits is a portion of a DMT symbol.

27. (Cancelled) A receiver, comprising:

(a) a convolutional decoder, the convolutional decoder cable of outputting convolutionally decoded tone ordered interleaved data; and

(b) a bit ordering element, wherein the bit ordering element is capable of re-ordering the convolutionally decoded tone ordered interleaved data.

28. (Currently Amended) ~~The receiver of claim 27,~~ A receiver, comprising:

a convolutional decoder, the convolutional decoder cable of outputting convolutionally decoded tone ordered interleaved data; and

a bit ordering element, wherein the bit ordering element is capable of re-ordering the convolutionally decoded tone ordered interleaved data,

wherein a transmitter supplies the data to the receiver and the transmitter codes the data with a tone ordering element and a bit and gain table, wherein the tone ordering element is capable of assigning bits to a plurality of tones and the bit and gain table is capable of designating that within a portion of the plurality of tones, a ~~variable plurality~~ first number of bits is assigned to each of the plurality of tones, and wherein the ~~variable plurality~~ first number of

bits assigned to each of the plurality of tones is different from ~~the variable plurality~~ a second number of bits assigned to each adjacent tone.

29. (Currently Amended) The receiver of claim 28, wherein ~~the portion of the~~ plurality of tones has an original bit density that is the same for each of the plurality of tones, and wherein the bit and gain table is capable of designating a reduction of the original bit density by one on alternate tones within ~~the portion of the~~ plurality of tones.

30. (Currently Amended) The receiver of claim 28, wherein the bit and gain table is capable of designating the assignment of the ~~variable plurality~~ number of bits to each of the plurality of tones by boosting the power on a first group of tones within the ~~portion of the~~ plurality of tones and lowering the power on a second group of tones within the plurality of tones.

31. (Original) The receiver of claim 28, wherein the portion of the plurality of tones is selected based on correlated noise affecting the portion of the plurality of tones.

32. (Original) The receiver of claim 28, wherein the bit and gain table is capable of being dynamically determined by a receiver.

33. (Original) The receiver of claim 28, wherein a portion of the variable plurality of bits is a portion of a DMT symbol.

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